guided by a noble idea, but the results of their work have not been very satisfactory. We must not mistake experimental surgery with the actual progress of surgery. How is it possible to consider as progress the efforts to cure insanity with a prefrontal lobotomy? That is all right as a study in experimental psychopathology, but it does not mean improvement in surgery; it is only the application of common surgery to the study of another of the great mysteries. Instead we have to consider the improvements in diagnosis, in preoperative care, in anesthesia, in the mechanism of operative techniques, in blood and plasma transfusions, in the treatment of shock, in postoperative care. The organization which coördinates all these factors has decreased mortality and postoperative sufferings to a very great extent. Concerning this matter, we can appreciate a remarkable change between the results obtained nowadays and those obtained in 1920. General mortality has decreased by 20 per cent. In some hepatic diseases there is no longer danger of infection or hemorrhage.

ON SURGERY OF THE FUTURE

We believe that, in the future, cancer, gastroduodenal ulcers and some phases of tuberculosis will not be treated by means of surgical operations, but, for the time being, we have to apply this necessary and sublime evil—surgery—until more and conservative therapeutic methods may be discovered. Only, we have to operate with more safety, with more precision, with more speed, with more human sense. The surgical progress in the present war can be synthesized in the following words: *sulfa drugs, transfusion, and speed.*

Suppress pain and danger! The aim of present-day surgery is to reintegrate the organism to its anatomical and functional balance. This is why surgery must be practiced with a deep sense of humanity. The present war shows us how it becomes more and more conservative each day; and how even words point to that change. In fact, the trend nowadays is not to use any more words like "debridement" that mean mutilating surgery. We talk today of "cleansing" a wound: that means conservative surgery.

In the Latin manuscript, "Great Surgery," by Guy de Chauliac, 1461, there is a picture full of meaning. In the middle, a doctor, the central character, is standing, and at his right one of his vassals, the druggist, while at the left of the doctor, a secondary character, the surgeon, is kneeling on the floor. The surgeon, grouped with barbers and blood donors, occupied that humiliating position almost until Pasteur and Lister gave our art scientific basis. Little by little the surgeon got such an extraordinary significance that he outshone the medical doctor. We are still living in the last stages of that outshining. It is our duty to preserve that position and rank; but to achieve such an aim we must give students a complete medical training, and an idea of the present and future possibilities of surgery.

I have talked of the past and present. What do we hope to be able to do in the future? We hope to be able to make of surgery a rational, precise, almost exact art-science. It is impossible to anticipate a far-away future, but in the near future we must devote ourselves to study the transplantation of tissues and organs scientifically. There is nothing unattainable for the person who has faith and vocation. Only when the replacement of an affected kidney, of a lung or liver by others be possible, shall we have reached an ideal of our art and deserve the title of true surgeons.

Meanwhile, let us continue to study clinical problems every day. If the field of the applications of visceral surgery decreases, let us then concentrate all our strength in the surgery of trauma and the surgery of plastic repair. This is the right time for us to devote ourselves whole-heartedly to such surgery.

Plastic surgery causes not only many anxieties, but also many satisfactions. Do not let us forget that we are in the beginning of such surgery.

Instituto de Clinica Quirurgica, Paraguay 2150.

SOUTH SEA MALARIA IN CALIFORNIA*

LT. COLONEL GARNETT CHENEY
MEDICAL CORPS, ARMY OF THE UNITED STATES
Modesto

THE evacuation of soldier patients from the South Seas to the Pacific Coast has caused the introduction of foreign malaria plasmodia into California. During the past three months, fifty-nine patients so infected have been admitted to the Hammond General Hospital in Modesto, California. An analysis of these cases is important at this time, as many of them have relapsed repeatedly following treatment, and if they are not cured before discharge from the hospital the problem of dissemination of malaria throughout areas of the United States where anopheles mosquitoes are found will become a very serious one.

The cases investigated fell into two general groups. The first group consisted of those patients evacuated from overseas because of recurrent bouts of malaria, rendering them unfit for military service abroad. There were thirty-three soldiers with the primary diagnosis of malaria. They had been free from chills and fever at the time of arrival, but blood smears had demonstrated parasites in nine of them. The second group was composed of patients admitted to the hospital with some type of disability other than malaria and in whom chills and fever have occurred while under medical observation. There were twenty-six patients in this group. All but one gave a history of having had one or more bouts of chills and fever in the South Seas, and parasites were demonstrated in the blood in all but two instances.

* From the Medical Service of the Hammond General Hospital, Modesto.

Chairman's address. Read before the Section on General Medicine at the seventy-second annual session of the California Medical Association, Los Angeles, May 2-3, 1943.

The opinions and assertions contained herein are the private ones of the writer and are not to be used as official or reflecting the view of the army department or the army service at large.

WARD ARRANGEMENTS

A special malaria ward was set up the first of February, 1943, to receive patients with malaria infection and those suspected of infection. All patients with a primary diagnosis of malaria are admitted directly to this ward for observation and treatment if indicated. Any patients elsewhere in the hospital who develop unexplained chills and fever, or have a blood smear positive for plasmodia, are promptly transferred to this ward for diagnosis and therapy. All malarial patients are placed under mosquito bars during the period their blood smears are positive, but are allowed the freedom of the ward thereafter if they are free from fever.

The malaria ward has been completely screened against the entrance of mosquitoes and all screens are inspected daily for any defect that might permit their entrance. The ward is sprayed daily, at dusk, with an insecticide containing 0.3 per cent pyrethrin, care being taken to reach all corners where insects might be overlooked. Any mosquitoes found are sent to the laboratory for identification, since anopheles is known to occur in this area. The ward personnel receive special instruction in mosquito prevention and its relation to malarial infection. A sanitary engineer inspects the ward weekly.

ROUTINE PROCEDURES

A routine antimalarial treatment is instituted when asymptomatic blood positive patients are admitted, and the sick patients are treated as soon as the type of plasmodium is identified. Two patients were treated, without delay, on the basis of clinical symptoms alone since no parasites were found in their blood and they were critically ill. The combined QAP (quinine, atabrine, plasmoquin) therapy employed consisted of quinine sulphate 0.64 gram three times a day for two or three days, or until pyrexia was controlled, and then atabrine 0.1 gram three times a day, after meals, for five days. After two days without antimalarial therapy, plasmoquin 0.01 gram three times a day, after a meal, was given for two days. This terminated a course of treatment, and no further drug therapy was given.

Graphic charts recording the temperature and pulse and the number of chills were kept on each patient, and these correlated the day of illness with the type of therapy. Blood smears were examined twice weekly on all patients under treatment, and practically all were negative for plasmodia after the third day of treatment. Patients with a primary diagnosis of malaria, but without clinical or laboratory evidence of infection, were required to have three negative blood smears on alternate days, and a further blood smear examination forty minutes after the injection of 0.5 cubic centimeter of adrenalin, subcutaneously, before being released from the malaria ward. Thick and thin blood films were examined for parasites each time a blood study was made.

TYPES OBSERVED

The following types of plasmodia were encountered:

P. vivax	37
P. falciparum	3
P. malariæ	1
Mixed types: *P. vivax* and *P. falciparum*	3
Undetermined	15

Actually, *P. vivax* was present in a total of forty of forty-four cases, or 91 per cent, and *P. falciparum* in a total of six cases, or 13.6 per cent of those in which the type was determined. This was in accord with the well-known tendency of *P. vivax* infections to relapse much more persistently than those due to *P. falciparum*. All except two of the patients in whom the type of plasmodia was not determined were studied before arrival at Hammond General Hospital and failed to show evidence of plasmodial infection while under observation there. As a rule, large numbers of parasites were readily found in the blood of patients obviously infected.

The presence in the blood of the plasmodia of malaria after departure of a soldier from the South Sea area, where he had been treated, has been considered evidence of a parasitemic relapse. In the first group of thirty-three patients, nine had malarial parasites in the blood when they were first examined. Six of these, however, were free from clinical symptoms at the time the blood tests were originally made. Of the remaining twenty-four patients, ten subsequently relapsed while under observation and were treated again. Three of these again relapsed while still under observation. Actually, nineteen of thirty-three patients in this group, or 58 per cent, relapsed under observation in the malaria ward.

COMMENT

In the second group of twenty-six patients all were chronically infected and all were "successfully" treated, since they became smear-negative during the course of therapy. However, five patients in this group subsequently relapsed again in that clinical symptoms reappeared or plasmodia were again found in the blood, or both, while they were still in the hospital, and they were treated a second time. Of the fifty-nine patients admitted to the malaria ward with the diagnosis of malaria, forty-five, or 77 per cent, represented relapses, and eight of these ultimately relapsed again after a complete course of combined QAP treatment and had to be re-treated. Since nine patients of the forty-five are at this time following their first course of therapy at the Hammond General Hospital, and consequently have not yet had time to relapse, they must be subtracted from the original forty-five patients in calculating the percentage of cases which relapsed after receiving the combined QAP treatment. This would give an incidence of relapse of 25 per cent (8 of 36 cases). A few other patients have not yet been parasite-free after three to four weeks of therapy—the usual time required before recurrence may be expected. Consequently, the per cent of repeated relapses (reappearance of symptoms or of plasmodia in the blood) will undoubtedly be higher on final analysis.

The forty-five cases of malaria definitely identified at the Hammond General Hospital represented almost 10 per cent of the patients admitted from the South Sea area, but it must be remembered that this incidence is abnormally high because nineteen of the infected patients were evacuated to the United States primarily because of their infection. In a group of 253 patients from the South Sea area who were free from symptoms of malaria, blood smears for malaria parasites were negative in all but two instances, giving an incidence of infection of only 0.79 per cent. Further observation of this group of patients will probably show an increase in the incidence of plasmodia infection.

The majority of the patients received on the malaria ward had been repeatedly incapacitated for military duty by chills and fever before being evacuated from the South Seas. Several had had five to ten separate bouts of pyrexia, for which they had been treated before arrival in California. Many stated that they would frequently develop chills and fever while taking suppressive atabrine therapy.

These patients with malaria are a selected group in whom a lack of resistance to plasmodial infection had already been demonstrated overseas, and was often the cause of their return to this continent. Consequently, the high incidence of relapses in this group is not indicative of the incidence of relapses in South Sea malaria in general. Nevertheless, this small group of patients vividly demonstrates the difficulties of curing imported malaria in the United States by the mode of treatment outlined, and presents a problem as yet unsolved in the proper disposition of these patients. A more satisfactory result might have been obtained by using larger doses of atabrine over a long period of time.†

Medical Service, Hammond General Hospital.

FRACTURES OF THE TIBIAL CONDYLES*

WILLIAM L. WEBER
Los Angeles

IN any discussion of fractures of the tibial condyles some attention should be given to the anatomy of the knee joint.

The knee joint is the largest and one of the strongest joints in the body—the latter fact shown by the rarity of knee-joint dislocations. The great strength and stability of the knee joint are not due to the conformation or unusual strength of the bony structures entering into the formation of the joint, but are due to the strength and multiplicity of the ligaments within and without the joint, and also to the muscle attachments about the joint. As a matter of fact, the upper expanded portion of the tibia overhangs the shaft on either side, and its lateral margins are poorly supported from below; consequently, the junction of the shaft, with the expanded cancellous tuberosities, is a point of definite weakness, and as a result fractures are fairly common.

Briefly, the structures stabilizing the knee joint are divided into the extra-articular and the intra-articular ligaments. The extra-articular ligaments are made up of the capsule, deficient at various points, but strengthened by special bands and by fibrous expansions from various tendons and muscles.

On the femur the capsule arises in front from just above the articular surfaces, fusing with the periosteum; on either side from the condyles as high as the level of the lateral tuberosities, and posteriorly is attached to the femur about one centimeter above the highest point reached by the articulating cartilage. Running anteriorly the capsule is attached to the edges of the patella just anterior to its articulating surface, and inferiorly is attached to the tibia all around its roughened circumference, a little below its top, and to the periphery of the semilunar cartilages.

Anteriorly, the ligamentum patellae run from the apex of the patella to the anterior tibial tuberosity, while on each side of the patella and the ligamentum patellae expansions from the vasti and fascia lata form well-defined and stabilizing structures, called the patellar collateral ligaments.

On either side of the joint the tibial and fibular collateral ligaments are well-defined and powerful structures, which limit side motions of the joint and serve as check ligaments to hyperextension. The external lateral ligament is especially well defined and splits the tendon of the biceps at its attachment to the head of the fibula.

Posteriorly, the capsule is reinforced by the oblique popliteal ligament (ligament of Winslow or posterior transverse ligament), which passes obliquely from the tendon of the semi-membranous across the joint, merging with the capsule and fibers from the external head of the gastrocnemius.

The intra-articular structures are the *cruciate ligaments,* the *medial* and *lateral menisci,* the *coronary ligaments* attaching the periphery of the menisci to the non-articular edge of the tibia, and the *transverse ligament* running between the anterior convex margins of the menisci. The crucial ligaments are the strongest ligaments of the knee joint, and limit forward and backward motion at the joint.

In recapitulation, we can understand what a truly important part the knee-joint ligaments play in not only tending to minimize displacement of tibial tuberosity fractures, but by their intimate attachment to the femur above and the tibia below, tend to hold the displaced tuberosity fractures in position after maximum reduction has been effected. Furthermore, by their firm attachment to the upper portion of the tibia it is believed that they also have a certain amount of moulding effect upon the newly-forming callus, provided that early active motion is started.

FRACTURE TYPES

Tibial condylar fractures may occur as a result of direct or indirect violence.

The indirect types occur by falling upon the feet with the leg in extension, or by forcible abduction

† Subsequent studies of blood atabrine concentrations tend to substantiate this statement.

* From the office of the Chief Surgeon of the medical department of the Pacific Electric Railway.
Read before the Section on Industrial Medicine and Surgery at the seventy-second annual session of the California Medical Association, Los Angeles, May 2–3, 1943.